Figure 2 depicts the position of SEQ.I.D.NO:3 to SEQ.I.D.NO:17 relative to the rat SNS_{2a} clone.

Figure 3 shows the localisation of human SNS_{2a} to human chromosome 3p21.

Figure 4 shows rat multiple tissue Northern Blot probed with SNS_{2a}. Lane 1 = DRG: Lane 2 = Spinal cord: Lane 3 = Total brain: Lane 4 = Adrenal gland: Lane 5 = Heart: Lane 6 = PC12: Lane 7 = PC12 + NGF: Lane 8 = RNA markers.

Figure 5 In situ hybridisation in rat DRG tissue using an SNS_{2a} specific probe. Figure 5a) shows a sense probe and 5b) shows an anti-sense probe.

Figure 6 shows localisation of SNS_{2a} to human DRG

Figure 7 Northern blot probed with SNS_{2a} using DRG tissue taken from rat pain models. Lane 1 = Control DRG: Lane 2 = DRG + 24 hours complete freunds adjuvant (CFA): Lane 3 = DRG + 24 hours sciatic nerve cut: Lane 4 = DRG + 48 hours sciatic nerve cut: Lane 5 = DRG + 7 days sciatic nerve cut.

Figure 8 illustrates the three vectors into which rat SNS_{2a} has been cloned: pBluescript, pCI-neo and pCIN5.

Figure 9: shows photomicrographs of SNS_{2a} and SNS/PN3 staining for mRNA and protein. D.E. F confirm SNS_{2a} labelling is found exclusively in small neurons (10-25μm diameter). Double labelling for SNS_{2a} and SNS/PN3 mRNA and protein (G.H.I.J) shows colocalisation in small neurons (arrows): larger neurons can be seen positive for SNS/PN3 but negative for SNS_{2a} (arrowheads).

Figure 10: Immunoprecipitation Western blot showing specific staining in the lanes from cells transfected with SNS_{2a} DNA with the two antipeptide antibodies designed to SNS_{2a}. Control lanes, where cells were transfected with yellow fluorescent protein (YFP) show no staining.

Figure 11: shows biophysical and pharmacological properties of recombinant rat SNS_{2a} Na^+ channels expressed in HEK293T cells. Representative current records are shown along with their peak current-voltage relationships (A.B). Capacitance transients have been blanked for clarity. Pannel C illustrates the effect of TTX on SNS_{2a}. It is resistant to sub μM concentrations of TTX. compared with the nM sensitivity of TTX sensitive sodium channels.

The following examples are for illustrative purposes only and are not limiting of the invention.

Example 1: DRG cDNA Library screening

Example 1a: Obtaining The Probe

A sodium channel probe was generated to allow screening of a rat DRG cDNA library with the aim to identify novel sodium channels present in the DRG. A pan specific sodium channel probe was obtained from Polymerase chain reaction (PCR) experiments using rat genomic DNA as the template and degenerate PCR primers designed from within the 3' coding regions of the brain II. heart. skeletal muscle and glial voltage-gated sodium channel. The oligonucleotide primers used for this analysis were as follows. FORWARD PRIMER (5' CCTG/CGTCATGTTCATCTAC 3'. and REVERSE PRIMER (5' CTCATAA/GGAA/GAC/TCTTGGAG/AGGG 3'). The PCR conditions used. were 94°C for 30 seconds. 50°C for 1 minute and 72°C for 2 minutes. These conditions were used for 35 cycles of PCR. The resulting PCR products were separated on a 1% agarose gel and cloned into the TA cloning kit (Invitrogen) according to manufacturers instructions. The resulting clones were taken for sequence analysis and separate clones were identified with identical sequence to the published rat brain II. heart. skeletal muscle and glial voltage-gated sodium channels.